BOTANICAL MUSEUM LEAFLETS
HARVARD UNIVERSITY

AMBRIDGE, MASSACHUSETTS, JULY 12, 1938 VOL. 6, NO. 4

CUCURBITA MOSCHATA FOUND IN PRE-COLUMBIAN MOUNDS IN GUATEMALA

BY

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INVESTIGATIONS OF PLANT REMAINS found in the environs of prehistoric man are recondite and technical, the materials generally unattractive and the results often meager. The interest which we take in such remains is largely genealogical, influenced by the hope of finding evidence to determine the region and age in which certain species of plants were first cultivated. Questions of ancestry and history touch us closely; so an inquiry into the source and parentage of the plants with which man is associated is fully as attractive as any question concerning the origin of the prototypal vegetation of the earth. There is a deep satisfaction in knowing how man lived in early times and what he used as food.

During excavations of pre-Columbian mounds by Carnegie Institution of Washington at Uaxactun, Department of Petén, Guatemala, a number of plant remains were recovered. These have been submitted to the writer for identification. Among them was a carbonized peduncle of a cucurbit. This was found in Construction P, Burial 37, Room 54, Structure A-V. Mr. A. L. Smith, who was in charge of the expedition, gives this a Maya date of roughly 10.5.0.0.0, which, he states, according to the correlation of Goodman, Martinez and Thompson, would be about 900 A.D.

There has long been widespread confusion and doubt regarding the nomenclature and classification of the cucurbits. Recent works (1) (6) (13) have so simplified the characters that it is now comparatively easy to differentiate between the annual cultivated species of *Cucurbita.* With very distinct characters in the leaves, fruit-stalks and seeds, the separation of the species *C. Pepo, C. moschata* and *C.maxima* is now possible even though the material is only a fragment of the complete plant.

The carbonized peduncle examined by the writer is distinctly five-sided, regularly grooved, and flaring at the point of attachment to the fruit. From its carbonized condition it may also be assumed that it was hard. These characters, checked with the keys and descriptions (1) (6) (11) (13), have allowed the writer to identify the specimen as *Cucurbita moschata* Poiret.

The characters of the specimen under consideration appear to match exactly those described for the typical *C. moschata.* These characters, however, seem to be dependable in such a pronounced way only in the Cheese Group of this species (6) (8), which have a shape similar to that of a cheese-box much flattened at both ends. Other varieties may have fruit-stalks which are not distinctly five-sided nor noticeably enlarged at the point of attachment with the fruit. This has led to the following statement by Erwin (7): "The identity of the peduncles, if considered alone, might raise a question as to whether they are *moschata* or *pepo*". However, the characters of this specimen seem to exclude this difficulty by being essentially like the figures given in the literature (1) (2) (6) (8) (13), which the authors consider typical of the species.

Although A. de Candolle (5) was undecided as to where this species was native, the accumulated evidence of more recent work shows it to be American in origin. Erwin (8) summed up the evidence thus: "The existence of specimens from pre-Columbian times, supported by the Seminole pumpkin which the Indians of that tribe claim is one of their ancient food plants, points rather definitely to the conclusion that *C. moschata* is an ancient American species". All the evidence cited by Erwin, however, merely establishes a long use for *C. moschata* within the United States (7) (8) (10). This is also suggested by Bailey (3), who, in writing of the Okeechobee gourd which at one time was thought to be closely related to the Seminole pumpkin, made the following statement: "There appears to be nothing in the Seminole cultivation of this pumpkin to suggest the nativity of *C. moschata*: these people grow only well-developed rather than primitive forms of the species". Although this plant has had a long history within the United States, it may have had its origin much farther south and have been brought northward with maize.

Following the formula proposed by Vavilov (12) for determining the origin of cultivated plants by locating the "regions displaying a maximal primary diversity of varieties" and the "series of regularities in the distribution of these varieties", Zhiteneva (15) and Burkasov (4) concluded that the white-seeded group of *Curcurbita moschata* had its origin in Mexico and Guatemala.

Wittmack's (14) find of seeds in an old Peruvian tomb of Ancon, some of which Naudin identified as *C. moschata*, extends this species far southward at an early date. Unfortunately no definite date is given for this material and there is no indication whether it is the dark-seeded form of the species supposedly native of South America or the white-seeded form of Guatemala (4) (15).

The presence of a carbonized peduncle of *C. moschata* in pre-Columbian mounds in Guatemala, and the distributional evidence of the Russian authors (4) (12) (15) may indicate a Central American origin of this species. This statement is strengthened, both by the suggestion of Bailey (3) regarding the pumpkin cultivated by the Seminole Indians of Florida and the age of the specimen in hand, in spite of the fact that the material obtained from the remains of the Basket Makers is much older (8) (10). The present pre-Columbian specimen also suggests that the Cheese Group of pumpkin, an old established variety in the United States, has had a long history in Central America.

Well preserved rinds, seeds and peduncles of *Cucurbita moschata* from the American Southwest, seeds from Peru, and a peduncle from Guatemala have now been obtained and identified from pre-Columbian cultures. The evidence suggests conclusively that this species is of New World origin and for many centuries was known to the aboriginal inhabitants.

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AN ADDITION TO THE GENUS LEPANTHOPSIS

BY

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A NEW SPECIES of *Lepanthopsis* (Cogn.) Ames, a native of Colombia, differing from all known species of the genus in its conspicuously acuminate sepals, has appeared among collections made in 1922 by Ellsworth P. Killip.

Lepanthopsis is a genus of exceptional interest. In its vegetative organs it suggests Lepanthes; in the general aspect of the flowers it recalls Pleurothallis, but in its generative structures it leans strongly toward that section of Stelis which is distinguished by having the stigmatic lobes widely separated.

Lepanthopsis acuminata *Ames sp. nov.*

Herba epiphytica, caespitosa. Caules secundarii adscendentes, monophylli, vaginis infundibuliformibus omnino inclusi, vaginarum ostiis hispidis. Folium ellipticum, bene marginatum, breviter petiolatum. Inflorescentia folium multo superans. Racemus multiflorus. Flores parvi. Sepala lateralia prope basim connata, lanceolata, valde acuminata. Sepalum dorsale lanceolatum, valde acuminatum, uninervium. Petala oblongo-ovata, acuta. Labellum cordatum, trinervium. Columna generis.

A small caespitose epiphyte about 7 cm. tall. Roots fibrous, glabrous. Stems slender, concealed by closely appressed tubular sheaths, monophyllous. Sheaths 7–10 mm. long, smooth except for the minutely ciliate margins of the infundibuliform tips. Leaves 10–15 mm. long, 6–8 mm. wide, elliptic-oblong or elliptic, obtuse, marginate, shortly petiolate. Inflorescence produced from the axil of the leaf. Raceme 1.5–3 cm. long, unilateral. Bracts of the inflorescence infundibuliform, about 1 mm.

long. Flowers about 1.5 mm. apart. Lateral sepals about 3 mm. long, lanceolate, acuminate, connate only near the base. Dorsal sepal lanceolate, acuminate, obscurely 1-nerved, about 3 mm. long and 1 mm. wide. Petals ovate-oblong, acute or somewhat obtuse, about 0.75 mm. long and 0.50 mm. wide. Labellum about 1 mm. long and broad, cordate, 3-nerved. Column very short with the stigmatic lobes separated by the triangular rostellar process.

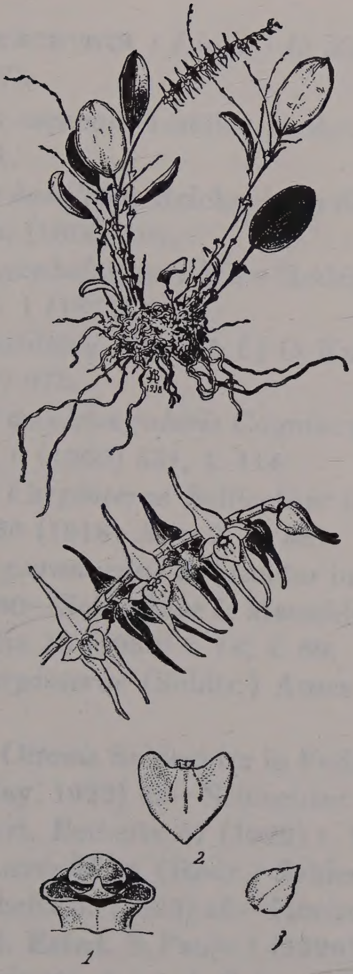
Lepanthopsis acuminata is allied to *L. densiflora* (Rodr.) Ames and to *L. floripecten* (Reichb. f.) Ames, differing from them chiefly in the acuminate lateral sepals which are connate only near the base.

Colombia: Department of El Valle, La Cumbre, Cordillera Occidental. Epiphytic herb in forest. At 700-2200 meters altitude. Perianth red-brown and green. September 11, 18, 1922. *Killip 11298* (Type in Herb. Ames No. 47693).

EXPLANATION OF THE ILLUSTRATION

Lepanthopsis acuminata *Ames.* Plant drawn natural size from a dried specimen of the type. A fragment of the raceme is represented much enlarged. 1, a petal, much enlarged. 2, a labellum, much enlarged. 3, a column, much enlarged, showing the laterally situated stigmatic lobes.

Drawn May 1938 by Blanche Ames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THE NOMENCLATORIAL STATUS OF MALAXIS EXCAVATA

BY

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Malaxis excavata *(Lindl.) O. Kuntze* Rev. Gen. Pl. 2 (1891) 673.

Microstylis excavata Lindley in Bot. Reg. 24 (1838) Misc. p. 51.

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Cheiropterocephalus sertulifera Rodriguez Gen. et Sp. Orch. Nov. 1 (1877) 29.

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Malaxis Carpinterae (Schltr.) Ames Orch. 7 (Apr., 1922) 157.

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Malaxis uncinata Ames & Schweinfurth in Sched. Orch. 10 (1930) 15.

I am indebted to Sir Arthur W. Hill, Director of the Royal Botanic Gardens, Kew, for the loan of a flower from Lindley's type specimen of *Microstylis excavata* which makes it possible to correlate the species definitely with names subsequently proposed.

Malaxis excavata is a widespread species and is, as one might expect, subject to considerable variation. This variation in the species accounts for much of the synonymy cited above. The species occurs from Mexico to Argentina. I have seen specimens or records of specimens (drawings, photographs) from the countries cited below. *Malaxis excavata* may be found in other adjacent countries as botanical exploration progresses.

Mexico, Costa Rica, Panama, Colombia, Ecuador?, Bolivia, Peru, Brazil and Argentina.

Reprinted September 1969.